A 10   use the logical relations to obtain a document constraint descriptor

defining a set of one or more constraints equivalent to the logical relations.

REMARKS

Claims 1-16 are pending. By this Amendment, the specification and claims 1 and 13 have been amended. Claims 1 and 13 have been amended solely to more explicitly recite the subject matter of the claimed invention. Reconsideration in view of the above amendments and following remarks is respectfully requested.

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Bashore during the June 26, 2002 personal interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

Prior to discussing the substantive issues with respect to the rejections to the claims, Applicants filed an Information Disclosure Statement on November 15, 2000 listing the references to be considered by the Examiner. A partially initialed Form PTO-1449 was returned with the above-identified Office Action. Applicants respectfully assert the documents listed in the International Search Report were individually listed on the PTO-1449. Thus, the a copy of the International Search Report was only submitted to placed in the file. However, on page 2 of the Office Action, the Examiner states that the reference titled "Constraint Agents for the Information Age" was not considered because a published date could not be found on the reference. Applicants respectfully assert the publication date of December 1995, i.e., 12.95, is provided in the box located in the top-right corner of page 1. For the convenience of the Examiner, Applicants attach hereto a copy of the date-stamped receipt of the submission, a copy of the partially initialed Form PTO-1449. It is respectfully requested that the completely initialed Form PTO-1449 be returned to Applicant's representative.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. As agreed to during the personal interview, Applicants respectfully submit that the specification sufficiently teaches to one skilled in the art a method for obtaining document constraint descriptors based on user signals as recited in claim 1 and as similarly recited in claim 13.

Moreover, Applicants respectfully assert the general objection to the specification is improper because no where in the Office Action does the Examiner provide specific assertions regarding the alleged insufficiency of the disclosure. Instead, the Office Action broadly states that Applicants' disclosure is insufficient to teach one skilled in the art a method of making and using Applicants' claimed invention without undue experimentation.

The specification is objected to for failing to recite copending U.S. Patent Application No. 09/421,752 and for containing an embedded hyperlink. The specification has been amended to refer to the serial number of the incorporated application and to delete the "http://" portion of the cited website URL, thus disabling the text string defining the cited web site from being accidentally interpreted as a hyperlink should an electronic version of the application be viewed using a web browser. In addition, the specification was objected to for containing information in the form of an Appendix. Applicants have incorporated the information into the specification. It is respectfully requested that the objections to the specification be withdrawn.

Claims 1-16 are rejected under 35 U.S.C. §112, first paragraph for containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains or with which it is most nearly connected, to make and/or use the invention. Specific language in claims 1 and 13 is identified as forming the basis of the rejection. The rejection is respectfully traversed.

The Office Action merely states that the "obtaining document constraint descriptors from analysis of logical relations equivalent to received attribute-value relations" features of claims 1 and 13 are not enabling in the specification. Applicants respectfully assert, at least, pages 27-37 of the specification discuss the above-identified features of claims 1 and 13. It is respectfully requested the rejection be withdrawn.

Claims 1-5, 8 and 13-16 are rejected under 35 U.S.C. §103(a) over U.S. Patent 5,794,233 to Rubinstein (hereinafter Rubinstein '233). Claims 6 and 7 are rejected under 35 U.S.C. §103(a) over Rubinstein '233 as applied to claim 1, and further in view of U.S. Patent 5,404,294 to Karnik. Claims 9-12 are rejected under 35 U.S.C. §103(a) over Rubinstein '233, and further in view of U.S. Patent 5,721,897 to Rubinstein (hereinafter Rubinstein '897). The rejections are respectfully traversed.

Applicants respectfully submit none of Rubinstein '233, Karnik and Rubinstein '897, teach, disclose or suggest a method for obtaining document constraint descriptors based on user signals comprising receiving user signals indicating a set of attribute value relations that can apply to documents, using the user single signals to obtain logical relations equivalent to the attribute value relations, the logical relations comprising at least one of a sort and a feature, and using the logical relations to obtain, without user intervention, a document constraint descriptor defining a set of one or more constraints equivalent to a logical relations as recited in claim 1 and as similarly recited in claim 13.

Instead, Applicants respectfully submit Rubinstein '233 simply prompts a computer user to construct a query expression from an automatically generated list of keyword phrases (col. 2, lines 37-40). In fact, the primary objective of Rubenstein '233 is to identify, for a user, keyword phrases in a plurality of documents. The user is then prompted to select keyword phrases and, based on the selected phrases, the documents containing the selected keyword phrases are presented to the user (col. 1, line 60 - col. 2, line 3).

In addition, Applicants respectfully submit that nowhere in Rubinstein '233, Karnik or Rubinstein '897 is it taught, disclosed or suggested to obtain logical relations equivalent to the attribute value relations, the logical relations comprising at least one of a sort and a feature, as recited in claims 1 and 13. For at least this reason, Applicant respectfully asserts that neither Karnik or Rubinstein '897, either alone or in combination, overcomes the deficiencies of Rubinstein '233, as discussed above with respect to claims 1 and 13.

For at least these reasons, Applicants respectfully assert the combination of Rubinstein '233, Karnik and Rubinstein '897 fails to teach, disclose or suggest all the features of Applicants' claims 1-16. It is respectfully requested the rejections be withdrawn.

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1 - 16 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number set forth below.

Respectfully submitted,

James A. Oliff
Registration No. 27,075

Maryam M. Ipakchi
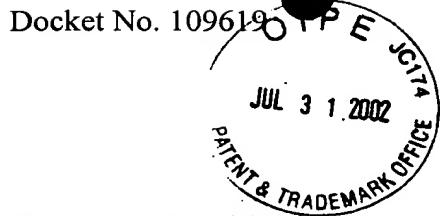Registration No. P-51,835

JAO:MMI/sxb

Date: July 31, 2002

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DEPOSIT ACCOUNT USE
AUTHORIZATION
Please grant any extension
necessary for entry;
Charge any fee due to our
Deposit Account No. 24-0037

APPENDIX

Changes to Specification:

Page 15, lines 6-18:

A portable computing device and techniques by which search requests may be generated in response to a data packet from a user of a portable computing device are disclosed in copending, coassigned U.S. Patent Application No. 09/~~421,752~~XXX,XXX (Attorney Docket No. R/97005), entitled "Transferring Constraint Descriptors for Documents", incorporated herein by reference. A portable computing device an include user interface circuitry for receiving user signals. The user interface circuitry can include display circuitry for presenting images on a small bitmap screen and selection circuitry for receiving user signals indicating items in images presented on the screen, such as through circuitry that senses a position at which the screen is touched by a finger tip or a pointer and circuitry for receiving signals provided through push buttons. The user interface circuitry can also include circuitry for providing audible signals to the user through a tone generator.

Page 17, lines 8-13:

Although the invention could be implemented in various ways, the invention has been successfully implemented by programming computing devices to employ knowledge brokers and feature constraints as described by Andreoli et al., above. A demonstration of a prototype can be viewed at <u>the web site page</u>~~http://~~ <u>"</u>www.xrce.xerox.com/research/ct/projects/cbkb/home.html.<u>"</u> This section reviews relevant aspects of knowledge brokers and feature constraints.

Page 25, lines 5-6:

These axioms <u>form a theory T, for example, and </u>are formally written<u>, for example, as the following three sets of axioms</u>~~in section A: Axioms in the Appendix at the end of this specification. They form a theory T.~~

A-1

Page 25, between lines 6 and 7, a new paragraph is added.

Page 25, lines 13-15:

Constraint satisfaction over BFCs is defined by a set of conditional rewrite rules over BFCs. For example, where a BFC is represented as a pair $(B \mid \Gamma)$ where B is a built-in constraint and Γ an unordered list of sort and feature constraints (read conjunctively), the following rules, for example, correspond to simplifications of the BFCs. In rules set forth below, $\perp$ denotes the contradiction. The set of conditional rewrite rules include: ~~(section B1 of the Appendix) which have the following properties~~

$$(B \mid x \xrightarrow{f} y, = 1 \xrightarrow{f} t, \Gamma) \qquad (B \wedge y = t \mid x \xrightarrow{f} y, \Gamma) \text{ if}$$

$$\vdash_\tau B \supset x = z$$

$$(B \mid x: \tau, y: \tau, \Gamma) \quad \rightarrow \quad (B \mid x : \tau, \Gamma) \text{ if } \vdash_\tau B \supset x = y \text{ and } \tau \text{ is not a}$$

value sort

$$(B \mid x: \tau, y: \tau, \Gamma) \quad \rightarrow \quad (B \wedge x = y \mid x : \tau, \Gamma) \text{ if } \tau \text{ is a value sort.}$$

The following rules, for example, correspond to the detection of inconsistencies.:

$$(B \mid \Gamma) \qquad \rightarrow \quad \perp \text{ if } \vdash_\tau \neg B$$

$$(B \mid x: \tau, y, : \tau', \Gamma) \rightarrow \quad \perp \text{ if } \vdash_\tau B \supset x = y \text{ and } \tau \neq \tau'$$

$$(B \mid x: \tau, y \xrightarrow{f} z, \Gamma) \quad \rightarrow \quad \perp \text{ if } \vdash_\tau B \supset x = y \text{ and } \tau \text{ is a value sort.}$$

The following property justifies the algorithm

$$(B \mid \Gamma) \qquad \rightarrow \quad \perp \text{ if and only if } \vdash_\tau \forall \neg (B \overset{\wedge}{\underset{c \in \Gamma}{}} c).$$

Page 25, between lines 15 and 16, a new paragraph is added.

Page 26, lines 14-22:

The algorithm for constraint satisfaction over SFCs ~~(section B.2 of the Appendix)~~ can informally be described ~~as follows~~ with the following example. For example, an SFC is

represented as an *unordered list* of BFCs prefixed with a sign (+ or -); by definition, one and only one component is positive. Let S be an SFC. The SFC-normal form of S is written S and is obtained by the following algorithm:

Let c_0 be the BFC-normal form of the positive component of S.

If $c_0 = \perp$ Then

Return $\perp$

Else

C_0 is f the form $(B_0 \mid \Gamma_0)$

Let $\{(Bi \mid \Gamma_l)\} i = 1, \ldots, n$ be the list of negative components of S.

For each $i = 1, \ldots, n$

Let c_i be the BFC normal form of $(B_0 \wedge B_i \mid \Gamma)$.

If there exists $i \in 1, \ldots, n$ such that $c_i = (B \mid \Gamma)$ and τ B and Γ is empty Then

Return $\perp$

Else

Let $I = \{i \in 1, \ldots, n$ such that $c_i \neq \perp\}$

Return $\{+c_{01} \{ - c_i\} i \in 1\}$.

The following property justifies the algorithm:

$$[+(B_0 \mid \Gamma_0) \{-(B_i \mid \Gamma_i)\} \frac{n}{i} = \perp \text{ if and only if } \tau \; \forall \neg [(B_0 \wedge \bigwedge_{c \in \Gamma} c) \wedge \bigwedge_{i=1}^{n} \neg (B_i \wedge \bigwedge_{c \in \Gamma} c)].$$

Therefore, for example, ~~G~~given an SFC, its positive component is first normalized by the algorithm for BCFs. If the result is a contradiction, the whole SFC is unsatisfiable. Otherwise, the normalized positive component is inserted in each of the negative components, which are then normalized by the algorithm for BFCs. If a resulting negative component has a contradictory normal form, it is eliminated, and if it has a tautological

normal form the whole SFC is unsatisfiable. The normal form for SFCs thus obtained has the following property:

Page 33, lines 18-22:

A document constraint descriptor could be transferred between two computing devices in the manner described in copending, coassigned U.S. Patent Application No. 09/421,752~~XXX,XXX (Attorney Docket No. R/97005)~~, entitled "Transferring Constraint Descriptors for Documents", incorporated herein by reference.

Page 42, lines 1-46 are deleted.

Page 43, lines 1-40 are deleted.

Changes to Claims:

1.   (Amended)   A method for obtaining document constraint descriptors based on user signals, the method comprising:

(A)   receiving user signals indicating a set of attribute-value relations that can apply to documents;

(B)   using the user signals to obtain logical relations equivalent to the attribute value relations, the logical relations comprising at least one of a sort and a feature; and

(C)   using the logical relations to obtain, without user intervention, a document constraint descriptor defining a set of one or more constraints equivalent to the logical relations.

13.   (Amended)   A machine for obtaining document constraint descriptors based on user signals, the machine comprising:

a processor; and

user interface circuitry for providing user signals to the processor;

the processor operating to:

receive user signals through the user interface circuitry indicating a set of attribute-value relations that can apply to documents;

use the user signals to obtain logical relations equivalent to the attribute-value relations, the logical relations comprising at least one of a sort and a feature; and

use the logical relations to obtain a document constraint descriptor defining a set of one or more constraints equivalent to the logical relations.